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GRANULOMA INGUINALE

WITH EXTENSIVE ORAL INVOLVEMENT

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Involvement of the mouth in granuloma inguinale is well recognized. Rajam [1] observed it in 4% of his 350 Indian cases, and other authors rate the incidence of extragenital lesions at 3-6% (Hanna and Pratt-Thomas,[2] Palik and Schenken [3]). The disease is rare in South Africa, however, and certain unusual features in the case to be described make it worth reporting.

CASE REPORT

A Shangaan male about 24 years of age, originally from Portuguese East Africa, was admitted to the Shabanie Mine Hospital on 22 March 1951, complaining of loss of voice for three weeks, associated with ulceration of the groin, face and mouth. He stated that the ulcers had appeared about four weeks before his admission, but the history was unreliable. The relevant previous history was as follows:

In December 1944 the patient began work on the mine.

In November 1946 he was admitted with a large ulcer on the prepuce, which was removed by circumcision. The Wassermann reaction was negative. He received seven injections of Neoarsphenamine. His stay in hospital was complicated by a suppurative parotitis.

In February 1947, while he was still in hospital, the skin of his right groin began to break down. The pathologist's report on a biopsy specimen read:

'Section of this specimen shows a mass of simple sub-acute inflammatory granulation tissue in which no aetiological agent has been observed.'

He was treated with a course of 350,000 units of Penicillin and a course of Sulphapyridine; zinc cream was applied locally. Four weeks later the ulcers were healing satisfactorily and he was discharged.

In September 1947 the patient was admitted with a minor injury, and was found to have breaking-down scars in the right groin. He received 1.2 million units of Penicillin in oil. As this had no effect, treatment with intravenous sodium antimony tartrate was started. After nine grains had been given the lesion had healed and he was discharged to work.

In September 1948 he was admitted with an abscess in the right scapular region. There was also an ulcer in the right groin. The abscess was opened and he received a further course of Penicillin. He was discharged on 26 October; there is no mention in the records of the state of his groin.

In September 1949 he was admitted with an injury. The groin was not ulcerated.

In March 1950 the patient was again admitted with an injury. He had breaking-down scars in the right groin and also in the right scapular region, where the abscess had been opened in 1948. The Wassermann reaction was again negative. Both ulcers healed on a second course of antimony.

Present Admission: *Physical Examination.* The patient was a rather thin Bantu male in his twenties. He spoke in a hoarse whisper.

In the right groin was a linear ulcer rather less than 1 cm. wide, lying approximately over the inguinal ligament; it extended down into the cleft between thigh and scrotum and had a total length of about 15 cm. The floor was granulating and there was a scanty purulent discharge. The inguinal glands were not enlarged. The groin ulcer was flanked by five smaller ulcers on the adjacent parts of the thigh and scrotum; these were raised circular granulating patches about 1 cm. in diameter.

The penis and the left groin were normal. Just outside the lower angle of the right scapula was a puckered scar where the abscess had been opened.

On the lower part of the right cheek, extending round into the submandibular region, was a raised ulcer 4 cm. in diameter, surmounted by a crust. When the crust was removed the ulcer was seen to have raised rolled edges and a granulating base with a yellowish purulent discharge. There were no palpable glands in the neck or submandibular region.

The mouth was extensively involved. On the inside of the lower lip near the left angle of the mouth was an ulcer about 1.5 cm. in diameter, with slightly raised edges and an excavated base. From this ulcer, linear prolongations of superficial ulceration extended to the left along the lower alveolar margin and the mucous surface of the cheek to another similar ulcer behind the last left lower molar, and to the right along the alveolar margin of the lower incisors, loosening these teeth, to the third tooth from the back. The inner alveolar margins were correspondingly involved. The tongue was normal. In the upper jaw the gums surrounding the right upper molars were ulcerated on both their outer and inner sides. On the left side a similar distribution of ulceration occurred, but here the ulceration extended from behind the last left upper molar to form a patch about 3 cm. in diameter on the hard and soft palate.

The uvula and fauces were normal. On laryngoscopy, the epiglottis and the entrance to the larynx were seen to be extensively ulcerated, having an appearance exactly similar to that of the palate and the gum ulcers. The cords appeared normal.

All the oral ulcers were painful and tender, and bled freely when touched.

Donovan bodies (*Donovania granulomatis*) were demonstrated in smears from the groin, face and lip ulcers, and also in a smear taken from the most posterior part of the ulcerated area in the mouth. These smears were stained with Leishman's blood stain. An attempt to swab the epiglottis under general anaesthesia, using a direct vision laryngoscope, was defeated by profuse bleeding as soon as the ulcerated parts were touched.

The general physical examination was otherwise negative. The urine was chemically and microscopically normal. The Wassermann reaction was negative. Examination of the blood showed red cells 4.9 million per c.mm., haemoglobin 10.6 gm./100 c.c.; white cells 5,400 per c.mm., with the following differential count: polymorphs 62%; lymphocytes 21%; monocytes 12%; eosinophils 5%. A chest X-ray showed nothing abnormal.

When Donovan bodies were found in smears from the ulcers, the laboratory which had reported on the biopsy specimen in 1947 was requested to re-examine this block of tissue, which had fortunately been preserved. The pathologist reported that with suitable staining methods abundant Donovan bodies had been revealed. The case was thus from the beginning one of granuloma inguinale.

Treatment and Progress. When the patient arrived at the hospital he was accidentally started on a course of Penicillin, 600,000 units daily. The following day a clinical diagnosis of granuloma inguinale was confirmed by smears. However, since proof of the aetiology of the epiglottal ulceration had not been obtained, it was felt that it would be worth observing whether it would be affected by treatment with Penicillin. After several days of treatment with Penicillin the epiglottis and adjacent parts showed no signs of healing, and meanwhile the palatal ulceration was observed to be spreading rapidly. A course of Dihydrostreptomycin by intramuscular injection (4 gm. daily for five days) was therefore started. The oral lesions at once began to heal. Three days after the end of the course only one small ulcer could be seen on the epiglottis, and the palate had healed except for one small area. The ulcer of the lip was markedly decreased in depth. Ten days after the end of the course the voice was returning, the mouth ulcers were all covered by epithelium, and no ulceration was seen on laryngoscopy. The ulcer on the face was reduced to half its original size. The extensive groin lesions were all covered by epithelium except for an area in the fold between the thigh and scrotum. A month after the end of the course all the lesions were completely healed.

DISCUSSION

This case shows the typical chronicity of granuloma inguinale. The disease apparently began in 1946 with a penile ulcer. In the few early male cases seen at Shabani, the primary ulcer has always been on the penis and not in the inguinal region. The groin was involved early, but the disease did not spread to the scapular region until two years, and to the face and mouth until four years after the appearance of the primary ulcer. In the cases described by Hanna and Pratt-Thomas the time between the onset of the genital lesion and the appearance of extragenital secondary ulcers varied from four months to six years.

Extragenital secondary ulcers may be due to auto-inoculation or blood spread.[3] In this case the shoulder lesion, which began as an abscess and not as an ulcer of the skin, may have been a blood-borne metastasis; on the other hand it may have been due to infection of the surgical scar with organisms from the groin. The lesions of the mouth and face were probably due to auto-inoculation, occurring as they did in a patient who seldom washes and who eats with his fingers.

In sections stained with haematoxylin and eosin the Donovan bodies are extremely faintly stained (Ash and Spitz [4]) and the histological examination may not reveal them unless the diagnosis is suspected and special methods used. This accounts for the negative histological findings in 1947; in the re-examination of this tissue the Warthin-Starry silver impregnation technique was used.

Two courses of antimony produced only temporary remission; but it is interesting to note that on two occasions (in February 1947 and September 1948) the ulceration diminished after treatment not known to be specific for granuloma inguinale, viz. Penicillin and Sulphapyridine. A tendency to remit in this way would perhaps account for such cures as that reported by Ross,[5] in which healing followed a course of Sulphapyridine.

It seems almost certain that the ulceration of the epiglottis and adjacent parts in this case was due to granuloma inguinale. Although this ulceration was not continuous with that in the mouth, it was similar to it in appearance; it was unaffected by Penicillin, and it cleared up synchronously with the palatal ulceration on the administration of Streptomycin.

SUMMARY

A case of chronic granuloma inguinale in a Bantu male is reported.

Secondary extragenital ulcers of the scapular region, face, interior of the mouth and the epiglottis occurred in this case, following two to four years after the primary genital lesion. It is suggested that the oral ulcers may have been due to auto-inoculation.

A tendency to remission following non-specific treatment with Penicillin and Sulphapyridine was observed in the earlier stages.

I am indebted to Dr. A. J. Ireland, Principal Medical Officer, Rhodesian and General Asbestos Corporation, for permission to publish this case; to Dr. D. H. Shennan for many of the investigations; to Dr. G. H. Findlay for suggestions, and to Dr. N. Walker for some of the laryngoscopic examinations.

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EDITORIAL

COLOUR VISION

The three-colour (trichromatic) theory of Thomas Young has for more than a century offered a feasible explanation of colour vision and has led to the development of colour photography and Technicolor cinematography.

In recent years, however, doubts have arisen about this theory. The problems are not so simple as they appeared at first. Supporters of the three-colour theory have continually found themselves unable to explain certain experimental facts.

Most workers are now agreed that chromatic aberration is present in the human eye: but in some way, when the eye is used for normal vision, the chromatic aberration is corrected or eliminated so that the colour fringes produced by the lens system are removed. It has become necessary to suppose that there are present in the human retina more kinds of receptors than the three originally predicated.

At present it is postulated that there are seven types of retinal receptors, but an essential feature of the modern polychromatic theory is that there should be polychromatism not only of the retinal receptors and of the nervous pathways, but also of the cerebral centres, i.e. the organ of vision is wholly polychromatic. This applies also to the phenomena of colour matching and hue discrimination. All colours cannot be matched by mixtures of the three primary colours (red, green and blue) because more than three colours are required. Seven component spectral colours are required to obtain exact matches with the spectral colours, and in order to account for the hue discrimination of subjects with normal colour vision there must be supposed to be in the retina at least six types of receptor. White light is seen by the simultaneous stimulation of the receptors of different colour responses in a certain ratio.

While the new polychromatic theory provides an approach to problems concerned with human vision, in some ways it has made the problem more difficult. It has still to be explained how rays of light stimulate the retinal receptors and how the nerve impulses are converted into perceptions in the brain. The conditioned reflex theory of learning may be of some significance in regard to the latter.

VAN DIE REDAKSIE

KLEURWAARNEMING

Die driekleurteorie (trikromatiese teorie) van Thomas Young het vir meer as 'n eeu lank 'n praktiese uitleg van kleurwaarneming gebied, en dit het gelei tot die ontwikkeling van die kleurfotografie en die tegnikleurige filmkuns.

In resente jare egter het daar twyfel omtrent hierdie teorie ontstaan. Die vraagstukke het nie so eenvoudig van aard geblyk as wat hulle aan die begin gelyk het nie. Ondersteuners van die driekleurteorie het hulself by herhaling onmagtig gevind om sekere proefondervindelike feite te verklaar.

Die meeste navorsers is dit egter nou eens dat kleurafwyking wél in die menslike oog aanwesig is, maar dat op die een of ander wyse, hierdie kleurafwyking herstel of uitgeskakel word, wanneer die oog gebruik word om normaalweg daarmee te kyk, waardeur dan die randstandige kleure, veroorsaak deur die lenssisteem, verwyder word. Dit het dus nodig geword om te veronderstel dat daar in die menslike oog se netvlies, méér as drie soorte reseptore aanwesig is as wat daar oorspronklik beweer was.

Teenswoordig word veronderstel, dat daar sewe soorte van netvliesreseptore bestaan; maar 'n belangrike aspek van die hedendaagse veelkleurigheidsteorie is, dat daar veelkleurigheid behoort te wees nie net by die netvliesreseptore en by dié van die senuweebane nie, maar ook by die breincentra, d.w.s. die orgaan vir gesigsvermoë is volkomenlik veelkleurig. Hierdie feit is ook toepaslik op verskynsels van kleur-ewening en tint-onderskeiding. Alle kleure kan nie geëwen word bloot deur vermenging van die drie basiese kleure (rooi, groen en blou) nie, want méér as drie kleure word dáártoe vereis. Sewe saamhorige spektrale kleure word benodig om sekure eweninge te verkry met die spektrale kleure; en, teneinde 'n verklaring te vind vir tint-onderskeiding by persone met normale kleurwaarneming, moet veronderstel word dat daar ses soorte van reseptore in die oog se netvlies bestaan. Witlig word sigbaar, as gevolg dáárvan dat verskillende kleurvatbaarheidsreseptore in 'n sekere verhouding geprikkel word.

Terwyl dan die veelkleurigheidsteorie één wyse van benadering aanbied t.o.v. die vraagstukke wat menslike sienvermoë raak, het dit tog in sekere opsigte ook dié probleem moeiliker gemaak. Daar moet nog 'n verklaring gegee word van hoe ligstrale die netvliesreseptore prikkel en hoe sulke senuweeprikkels in waarnemings omgesit word in die brein. Die gekondisioneerde-refleks-teorie oor die aanleer van iets, mag enigsins van betekenis wees in verband met laasgenoemde saak.

STUDIES ON PAIN*

II: POST-TRAUMATIC PAIN

FROM OBSERVATIONS ON 93 CASES

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The present study refers to a series of cases of protracted, severe post-traumatic pain. No case in which persisting infection may have been responsible for the pain has been included in the series.

Forty-eight personal cases have been recorded since June 1942. Forty-five cases were collected from the records of the Neurosurgical Service, under Mr. R. A. H. Krynauw, of Johannesburg, covering the period 1940 to 1946, both inclusive. Where these are quoted the case number is followed by a K. Table I sets out general analysis of these 93 cases.

NATURE OF TRAUMA AND TISSUES DAMAGED

Many published reports have stressed that a trivial injury may act as the prelude to a long tragedy of pain. This is once again borne out here, where the initiating trauma has varied from a bump or superficial cut to the grosser injuries of warfare. Beecher (1946) has reminded us of what has been known for many centuries. Severe wounds in soldiers are often accompanied by little pain, 'only one-quarter, on being questioned shortly after entry in a forward hospital said that their pain was enough to cause them to want pain relief therapy'. In the absence of complications, we all know that even this percentage declines very rapidly. Among the personal cases of the present series, 30 were due to battle wounds when, at a conservative estimate, the author has had occasion to treat at least 4,000 such injuries. Speaking very generally then, less than one per cent of injuries due to the various projectiles of modern warfare initiate a severe, protracted, painful syndrome.

From experimental data, such as afforded by Lewis and his co-workers, and from clinical experience it is attractive and probably at least partly correct to postulate that pain persisting for a time is due directly to the trigger effect of tissue damaged by trauma. The thesis remains attractive as long as evidence of such damage remains. It may remain in a scar, and we all know that under the stress of mental worry, emotional upset, inclement weather, it is by no means uncommon to experience unpleasant sensations in such. They are usually fleeting, and it looks as if at the periphery there remains a locus of lowered resistance that can be excited via certain neuronal mechanisms (1948). Sometimes the reaction may be an unusual one as will presently appear.

TABLE I: GENERAL ANALYSIS OF CASES

Type of Injury	*Personal Cases*		*Cases from Neurosurgical Service, Johannesburg*		*Combined Cases*	
	No. of Cases	*No. with Nerve Injury*	*No. of Cases*	*No. with Nerve Injury*	*No. of Cases*	*No. with Nerve Injury*
To soft tissues only	18	8	3	0	21	8
Closed ligamentous strains	—	—	9	0	9	0
Fractures: Originally closed 3		1				
Fractures: Originally open 7	10	4	5	0	15	5
Closed nerve root, plexus and peripheral nerve injuries (Clinical diagnosis)	—	—	8	8	8	8
To spinal cord — *Open:*	1	1	*Closed:* 1	1	2	2
Therapeutic procedures	18	16	19	10	37	26
Remote	1	0	—	—	1	0
Total:	48	30	45	19	93	49

No single tissue holds the prerogative of initiating or perpetuating a protracted, severe painful state. From the time of Weir Mitchell emphasis has been laid on injury to a large nerve. A high proportion of painful states is associated with such lesion, but many instances are not.

RECOGNIZED PERIPHERAL NERVE OR NERVE-ROOT INJURY

In 30 of the 48 personal cases, there was definite evidence of injury to peripheral nerve trunks or nerve roots—visualization at operation, amputation, or indisputable clinical evidence. Over the same period at least 400 instances of such injury were personally encountered. This comparative figure gives a much truer impression of the importance of nerve injury as the cause of protracted post-traumatic pain than the percentage with nerve injury in a

* The References will be published at the end of the concluding part of this article.

series of cases with this state, and outweighs the apparent contrary evidence from the Neurosurgical Service, which dealt almost entirely with civilian material in a country fortunate enough to escape the horrors of aerial bombardment. On the other hand, the figure is by no means truly representative of the percentage of nerve injuries that do present with severe pain; owing to the known interest of the author there has been selection of referred material.

MOTOR AND SENSORY EFFECTS IN EXCESS OF THOSE DIRECTLY ATTRIBUTABLE TO NERVE INJURY, OR IN THE ABSENCE OF SUCH INJURY

Table II sets out a number of motor and sensory effects in excess of those attributable to injury of nerve root or recognizable peripheral nerve. Excessive motor effects were most commonly due to aggravation of pain by attempts at movement (in eight cases). In two cases ischaemic effects and in one case direct musculo-skeletal damage appeared responsible. In only one instance could this be called a 'reflex' phenomenon. In 12 cases, cutaneous hyperaesthesia was noted to extend well outside affected nerve territories.

Table III sets out similar details in respect of cases without injury to nerve roots or recognizable peripheral nerves. Again, pain aggravation played the major part in inducing motor effects (13 cases); ischaemia played a role in five cases, direct musculo-skeletal damage in two cases. In nine instances there appeared to be a reflex muscular dystrophy. Here muscle weakness was evident at rest and disappeared after pain relief therapy. Hyperaesthesia presented in 15 cases, hypoaesthesia in three.

TABLE II: MOTOR AND SENSORY EFFECTS IN EXCESS OF THOSE DIRECTLY ATTRIBUTABLE TO NERVE INJURY

Case No.	*Added Motor Effects of*				*Sensory Effects (Excessive):*
	Ischaemia	*Musculo-skeletal Damage*	*Pain Aggravation*	*'Reflex'*	*Hyperaesthesia*
4	+	—	—	—	—
6	+	—	+	—	—
11	—	—	+	—	—
12	—	—	+	—	+
14	—	—	+	—	—
15	—	—	+	—	+
17	—	—	—	—	+
18	—	—	+	—	+
26	—	—	—	—	+
30	—	—	+	—	+
32	—	—	—	—	+
34	—	—	—	—	+
35	—	+	—	—	(Seen after posterior rhizotomy).
37	—	—	+	—	+
39	—	—	—	—	+
45	—	—	—	+	+
47	—	—	—	—	+

TABLE III: MOTOR AND SENSORY EFFECTS IN CASES WITHOUT INJURY TO NERVE ROOTS OR RECOGNIZABLE PERIPHERAL NERVES

Case No.	*Motor Effects of:—*				*Sensory Effects:—*	
	Ischaemia	*Musculo-skeletal Damage*	*Pain Aggravation*	*'Reflex'*	*Hyperaesthesia*	*Hypoaesthesia*
1	—	—	+	—	+	+
2	+	+	+	+	—	—
3	+	—	+	+	+	—
5	+	+	—	—	+	—
7	+	—	+	+	—	—
8	+	—	+	+	—	—
9	—	—	+	—	+	—
10	—	—	+	—	+	—
13	—	—	+	—	—	—
19	—	—	+	—	+	—
21	—	—	—	+	+	+
22	—	—	—	+	+	+
24	—	—	+	+	+	—
25	—	—	+	—	+	—
28	—	—	+	+	+	+
29	—	—	+	+	+	—
31	—	—	—	—	+	—
38	—	—	—	—	+	—
41	—	—	—	—	+	—

The cases from the Neurosurgical Service gave no information that can be included in considering these phenomena.

SOME VASCULAR PHENOMENA

In these cases objectively demonstrable features frequently present and it is tempting to ascribe a direct pain causative role to them. The greatest temptation lies in the peripheral vascular phenomena, so much so that the French School, mainly on the inspiration of Leriche, came to regard post-traumatic pain as here considered as a Raynaud-like condition.

The temptation becomes even greater when, under appropriate therapy, both pain and demonstrable disturbance of peripheral vasculature disappear *pari passu*. However, such reasoning can be fallacious and the matter needs re-examination. Within the limits of the present survey the following observations appear:

Arterial Spasm and Pain. In 1947, a series of 17 cases of post-traumatic arterial spasm was published. Since then two further cases have been seen. Among these 19 cases:

Five were noted as a transient phenomenon with no injurious or unpleasant sequelae;

In *one* transient spasm was sufficiently prolonged to produce permanent injurious effects;

In *three*, spasm presented as part of an acute painful syndrome (Cases 1, 2, 3);

In *nine*, prolonged spasm was associated with varying degrees of neuromuscular crippling—in only *five* of these was pain a feature;

In *one*, severe pain suddenly appeared round a scar 10 years after injury, and was associated with arterial spasm (Case 9).

Hence readily demonstrable arterial spasm of varying duration is certainly not constantly associated with pain. These observations must immediately throw doubt on any pain-causative role of vascular spasm as such. Further analysis of the nine cases in which pain was a feature reveals further disquieting material. Putting the story of four of these very briefly we find:

Case 1. A young soldier with a strong 'neurotic' background saw several of his fellows killed about him in the Madagascar landing on 6 May 1942. A few hours later he experienced severe abdominal pain and he vomited for several days. He was evacuated to South Africa and very thorough clinical, radiological and laboratory investigation revealed no 'organic' disease. Awaiting return to duty he bumped his elbow and immediately experienced excruciating pain, which persisted in the absence of any demonstrable lesion. Within the next few days peculiar sensory disturbances and vascular phenomena appeared. Examination 19 days after the commencement of pain gave evidence of spasm affecting all the arteries of the affected upper limb. Repeated examinations gave similar results. Pain persisted. One month after the initial injury sympathetic procaine block brought relief and disappearance of objective signs. Block was repeated six days later for return of pain. Three weeks after this the man was returned to full duty.

Case 2. This soldier received a shell wound in the Western Desert on 15 June 1942—compound fracture of humerus. Admitted to Baragwanath on 28 July 1942 with arm in abduction plaster cast. On 10 August 1942 cast removed and arm put in plaster cuff and sling. This change of support was followed by pain in the forearm and fingers, and shooting up into the arm. The pain was agonizing, with paroxymsms brought on by any form of movement, and even the vibrations of the bed produced by persons walking past. The man looked miserable and drawn. The pain continued unabated until the 14th, in spite of morphine. The hand and forearm were cold and pale, the pulse on the affected side scarcely palpable. There was no evidence that the cuff had been too tight. A new cuff was applied, and the limb returned to exactly the same position as before operation. The stellate ganglion was infiltrated with novocain. On recovering from the anaesthetic, the agonizing pain had gone. It did not return, the pulsess remained equal. The man was evacuated to England in November.

Case 3. Bari, July 1944. Yugoslav Partisan. Wounded three weeks before, while escaping from a German prison. Bullet wound through arm; exposure in cold water for several hours.

On examination: bruising of upper arm, absence of radial and brachial pulses, extremity cold. Severe, diffuse pain and hyperaesthesia in upper limb, extending to shoulder. Infiltration of appropriate sympathetic segments with novocain gave relief for three days. Two days later, under pentothal anaesthesia, the brachial artery was exposed, and found to be shrunken to a narrow, non-pulsating cord. The contracted segment was excised between the superior and inferior ulnar collateral vessels, which, although not pulsating, did not appear to be contracted. There was no thrombus in the excised segment and it was not involved in scar. The operation was followed by flushing and warmth in the limb. The radial pulse returned and pain disappeared.

Case 9. A middle-aged woman seen in 1947. Her life was drab and she looked tired and worn. Ten years earlier she had sustained a fracture of the tibia which had healed, without complication and in perfect position. Suddenly the old cutaneous scar became intensely painful and pain spread to the surrounding parts of the limb and was attended by diffuse hyperaesthesia. She was seen after pain had been present for six months. Sympathetic block with procaine, after excluding demonstrable pathology, gave relief over a follow-up of six months.

These four cases seem very different from the other five, in which the pain-causative role of chronic ischaemia seemed acceptable, as far as can at present be judged. In these latter there was some resemblance to the intermittent claudication of vascular obstruction, plus a more constant cramp-like or aching pain usually aggravated by muscular activity or attempts at such. It is still interesting, however, that pain was not constant in those nine cases presenting prolonged spasm, which contentious subject has been discussed elsewhere (1947).

Arteriolar Spasm and Pain. Little argument can be raised here. Eight cases of pain with demonstrated arteriolar spasm were all seen some months after injury; no knowledge is claimed of such post-traumatic vascular state in the absence of pain.

Vasodilatation and Pain. The picture of increased skin temperature and colour change, with normal or increased pulsatile circulation, excruciating, usually burning pain, and hyperaesthesia is a most striking one that can hardly escape attention. In case 33 the full-blown picture was observed within four days of injury. In the other cases it was noted weeks or months later. Clinical post-traumatic

vasodilatation was noted in 16 cases with severe pain, it was not noted in the absence of pain.

TABLE IV: PERIPHERAL VASCULAR ABNORMALITIES IN 48 CASES

	No. of Cases
Arterial spasm with or without traumatic organic occlusion	9
Other vasoconstriction	8
Vasodilatation	16
Alternating vasoconstriction and vasodilatation	2
No demonstrable vascular abnormality at examination	13

Sudden change from a state of vasospasm to one of vasodilatation was observed in Case 34, and had been recorded in Case 48.

Post-traumatic pain without abnormal vascular phenomena was noted in 13 personal cases.

THE REACTION TO FURTHER PAINFUL STIMULI

In dealing with cases where there has been an unusual reaction to one pain-provoking episode, or even where there has been a more clear-cut pain-producing disease, it is important to note their continued and further tendency to over-react to new, including therapeutically applied, painful stimuli. In the early phases after injury, it is often noteworthy how agonizing is the initial response during procedures like sympathetic blocks. When the sufferer's confidence has been gained the Iliadic fury of a session usually gives way to Oddysean calm. In the later phases the same overreaction may appear, may be more prolonged and distressing.

Case 46. Seen during 1949, three weeks after a successful sympathectomy for angina pectoris. The woman had suffered constant, agonizing pain around the site of the surgical incision, in the neck and upper arm on the same side from the first post-operative day. Repeated examination, including X-rays, revealed no abnormality beyond anaesthesia in the distribution of a supraclavicular nerves. The pain gradually passed off over the next few months.

Case 17. A nursing sister had intravenous infusion during a hysterectomy two years before. The superficial branch of the radial nerve was cut. Severe pain followed, and was not relieved by subsequent neurolysis and then section and suture of the nerve. Pain remained incapacitating and was associated with intense hyperaesthesia of the forearm—pain was worse during cold weather and associated with evidence of vascular disturbance. On 11 October 1947, Novocain infiltration of D 2-3 sympathetic ganglia produced temporary relief. Upper dorsal sympathectomy after the method of Smithwick was performed on 20 October 1947 (J.F.P.E.). There was immediate relief from the presenting pain and hyperaesthesia. Following on a pleuritic reaction, there was a train of severe pain in the shoulder and upper intercostal spaces. This was attended by a severe emotional reaction which culminated in an hysterical outburst in January 1948. Firm handling of this latter by Dr. Watt was followed by a sudden and dramatic change in the patient's whole attitude. Last communication 18 months later stated that pain had not recurred.

In Case 17, there were certain matrimonial difficulties that complicated the picture. It may very well be that this lady was drawing attention and sympathy because she felt neglected and insecure, apparently rather unnecessarily. These instances and others raise two very important considerations: the ever-vexed question of the psychological component of pain and the production of pain by surgical intervention.

(To be concluded)

PHANTOM LIMB PAIN ASSOCIATED WITH SPINAL ANALGESIA

REPORT OF A CASE

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The uncommon complication of an acute exacerbation of pain in a 'phantom limb', during spinal analgesia, is of sufficient interest to warrant report.

A European male, aged 60 years, was admitted to hospital on 8 March 1951 suffering from Buerger's disease. In December 1949 the patient had had a right mid-thigh amputation. Pain in the phantom limb appeared shortly after the amputation, and has been present intermittently ever since, but was never of great severity. He was readmitted because of the onset of symptons in his left leg. A lumbar sympathectomy was decided upon to alleviate the condition, and on 14 March the patient was prepared for operation.

Spinal analgesia was induced with 1.5 ml. of 1:200 Nupercaine, the patient being in the left lateral position, with the table in a slight Trendelenburg tilt. No difficulty was experienced in giving the spinal injection. The patient was maintained in this position for five minutes before being turned on to his back.

Shortly after the spinal injection, and while still on his side, the patient complained of pain in the phantom foot similar to that previously experienced.

As analgesia was satisfactory the operation commenced and proceeded uneventfully. The pain in the phantom foot, however, increased steadily and about half-way through the procedure the patient complained that it was now unbearable; 50 mg. Pethidine was administered intravenously. The pain subsided after the injection of Pethidine, but did not disappear completely.

When seen in the Ward some hours later, the patient

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volunteered the statement that 'the pain in the right foot (phantom limb) had disappeared when life returned to the left leg'.

DISCUSSION

Brooke Moore [1] reports the case of a man who suffered an acute exacerbation of pain in an amputation stump—throughout the entire duration of spinal analgesia, administered for a herniotomy.

Gwendolen Harrison [2] reports two cases—one of severe pain in a phantom foot, and the other of aggravation of pain in a patient suffering from sciatica, both during spinal analgesia.

If one accepts the hypothesis of a central focus of pain production in these cases, no alteration or relief of pain in a phantom limb is to be expected. It is, however, difficult to understand why an acute exacerbation of pain should take place during the course of spinal analgesia.

An interesting feature of the case described, is that in the five weeks that have elapsed since the operation, the patient has been free of pain in the phantom limb. This is the longest intermission of pain the patient has experienced.

Apart from the great interest attached to this phenomenon, there is also a practical aspect. Where a general anaesthetic is dreaded by the patient, and a spinal injection is decided upon, it is a wise precaution to warn the patient, who has a phantom limb, that some form of covering anaesthesia may be required.

SUMMARY

A case of phantom limb pain aggravated by spinal analgesia is described.

The practical importance of this complication is indicated.

I should like to thank Dr. J. D. Prestwich, Superintendent, and Mr. A. E. Laubscher, Head of the Department of Surgery, for permission to publish this case.

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NOTES ON THE APPLICATION OF VITAMIN A IN DERMATOLOGY

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Competitive advertising methods employed in the sale of vitamin preparations do not appear to have substantiated the multiplicity of therapeutic claims made. In the cross-section of patients seen in private practice, the relative plentitude of food makes it unlikely that vitamin deficiency is an important etiological factor in ill health. Yet, apart from those dermatoses specifically associated with such deficiency and responding to appropriate vitamin administration, there appears to be an ill-defined group that may derive benefit.

It must be borne in mind that simple deprivation in the diet is not the only cause of deficiency. Malabsorption in the case of vitamin A may occur in such conditions as sprue or obstructive jaundice, probably on account of bile deficiency in the intestinal contents. Provitamins, of which beta-carotene is the most important, occur in plants in proportion to their yellow or green colour (carrots, yellow mealies, green peas, string beans, spinach, pumpkin, etc.). From these the carotene-vitamin A conversion is said to occur in the Kupffer cells of the liver. Liver storage, release according to requirement and cell utilization form part of an intricate mechanism that is hitherto ill understood. Adequate vitamin E intake appears to increase storage and prevent exhaustion of the vitamin. In gross hepatic deficiency, e.g. in the later stages of cirrhosis, the vitamin conversion may be interfered with. Moreover variation or perversion in appetite may considerably cut down the intake of vitamin or provitamin.

The abuse so many of us subject our digestive organs to is manifold and protean. Even in gross disease the multiplicity of hepatic function tests available militates against any particular one being of outstanding merit. One group is useful in gross liver damage; another in the assessment of biliary obstruction. It is not unlikely that subclinical grades of hepatic impairment for which there are as yet no biochemical criteria are relatively common. Moreover, such may depend on metabolic anomalies still to be evaluated, and may account for syndromes at present described as congenital disease, e.g. Darier's disease.

Vitamin A is concerned with the conservation of integrity and health of skin and mucous membrane in the body. Generally, skin changes in deficiency are manifest by keratotic papules arising from and surrounding the pilosebaceous follicles (follicular keratosis) on a previous basis of dryness and roughness. The skin may hyperpigment in areas, and there may be an appreciable diminution or absence of sweating. Eye changes occur later, and in addition to nyctalopia, a failure in regeneration of the visual purple, are primarily due to arrest of lachrymal gland secretion, the absence of lubrication leading to inflammatory and infective changes, conjunctival thickening, later corneal softening and eventually xerophthalmia. Susceptibility to infection of the eyes, upper and lower respiratory tract, urinary tract (lithiasis), etc., is increased; experimentally the epithelial surfaces are said to cornify and be converted to squamous epithelium. Other effects, e.g. bone malformation, nerve tissue degeneration and interference with renal function are described.

Clinically, dark adaptation tests, apart from being difficult to do, are not of great use as an index of deficiency. Where facilities are available (and I have not found them here) the estimation of plasma vitamin and carotene concentrations appears to be the method of choice (113 I.U. and 139 I.U. % respectively).

Sulzberger, in the 1946 *Year Book of Dermatology and Syphilology*, lists a number of dermatoses reported to

benefit by the administration of the vitamin. He states that therapy 'should be studied in relation to all diseases associated with abnormal keratinization and hard, dry cornification, including plugging of the ducts of cutaneous glands'. My own experience in the use of vitamin A therapy has been at times disappointing. Oral maintenance in adequate doses, e.g. 100,000 units daily in suitable cases, must be maintained over at least four to six months, and then may not show results. Conversely, parenteral administration appears to have given better results in a number of conditions. This raises the point that an adequate absorption defect is probably the culpable etiological factor. Furthermore, in order to assess the value of any treatment, other methods should be withheld: this is obviously difficult outside institutional practice, as in Case 1.

Case 1. Mrs. A. B., *aet.* 44, first consulted me on 25 July 1949. She gave a history of having developed, in 1942, some months after a hysterectomy and double oophorectomy, a chronic, non-healing ulcer of the lower lip. After a long time spent in the use of topical preparations and subsequent surgical diathermy, both ineffective, she was given X-ray therapy and the lesion healed. Later she developed three lesions about the face, and was similarly treated. She was somewhat stout, and of the fair, reddish complexion highly susceptible to the ultra-violet radiations of the sun. The exposed parts of her skin, face, neck, V-shaped region over her sternum and dorsa of her hands were erythematous (chronic actinic dermatitis), and were punctuated by about two dozen lesions, consisting of heaped-up keratoses, and of rounded or irregular, deeply erythematous macules (some partially scaled over) which did not fade on diascopy. Her skin was extremely dry and exhibited occasional pigmented spots and small telangiectases. I was suspicious of these macular lesions, which I diagnosed as multiple basal carcinomata, the keratoses supplying the pre-cancerous factors. Drs. Sims, Gluckman, Bloomberg reported (2 August 1949) on the biopsy specimen:

'. . . the epidermis as a whole is somewhat thickened except at two or three places. In these situations several broad, irregular trabeculae, usually of rather ovoid shape, are seen growing out into the underlying tissue. These are arising from the lower layers of the epidermis. At first sight, these trabeculae are reminiscent of classical rodent ulcer structure. But closer inspection reveals that they are rather more highly differentiated squamous cells. There is no true attempt at palisading although the arrangement is, on the whole, regular. At two situations the trabeculae are seen to be infiltrating into the epidermis and reaching almost to the surface. The corium shows a little lymphocytic infiltration on a somewhat irregular scale. There is a little collagenous degeneration. The features are those of *multiple epitheliomatosis of the skin.* In at least two situations which were observed on these sections the growth may be regarded as intra-epidermal.'

Treatment, by surgical diathermy extirpation under 2% Novocaine, dealing with two or three lesions at a time, both keratoses and epitheliomata, at intervals of three or four weeks, was begun, until roughly one-half of the lesions had been dealt with. At this stage I felt that a rest was indicated. She had been on Ext. Thyroid. Sicc. gr. ½ *b.d.* for some time, with little improvement to the texture of her skin; and consequently I commenced weekly intramuscular injections of vitamin A in oil (Squibb 100,000 units, U.S.P. per c.c.). Another reason for my delay in resuming diathermy treatment to the remaining lesions was that one of the last-treated lesions had suppurated, and required time to clear up. At all events, within two months of vitamin therapy, not only had the texture (dryness) of her skin improved considerably, but all the remaining lesions had retrogressed; in fact, two of the five erythematous macules (epitheliomata) appeared to have resolved completely. I continued injections at fortnightly intervals until 29 November 1950, 20 in all being given: on this date her skin condition was completely clear. Dr. I. Muende, of London, who happened to be in Johannesburg at the time, saw her on 25 September 1950, and was impressed not only with the result, but with the excellent slide submitted by the pathologists. Inquiry about previous defect in light adaptation or improvement after treatment (for what this is worth) was negative: no plasma concentration tests were performed.

I have in the past 12 months used vitamin A prophylactically on three patients who presented themselves with a second or third basal carcinoma of the skin, occurring at different sites and times, and which were treated by surgical diathermy. So far none has shown a recurrence, but obviously this is inconclusive from a scientific point of view.

Case 2. Mr. M. B., *aet.* 27, consulted me on 20 January 1949 with the history of a 12-years' generalized eruption. He had had actinotherapy, which aggravated the condition, and superficial radiotherapy, which had not helped. He stated that his dermatosis was definitely worse after exposure to the sun. It was subject to exacerbations, but during these years remission had been incomplete. It had started on the scalp, and had spread down behind the ears, down his neck, front and back of the chest, and further down the midline of his back towards the natal cleft. The patient was robust and fair and somewhat red of complexion.

On examination I found a number of greasy crusts covering infected hair follicles of the scalp, hyperkeratotic soles of the feet, the toe nails somewhat friable with subungual hyperkeratoses. The skin of his shoulders and back was symmetrically covered with brownish, greasy areas due to a confluence of follicular keratoses. Similar isolated, papular lesions intervened between these areas and were present on the face and the neck, the front of the chest and the extremities. Behind the ears and on the volar surfaces of the forearms the lesions were flat, and resembled verrucae planae. The patient was a farmer, and his diet appeared to be balanced and plentiful. At one stage he had been given vitamin A by the mouth together with a few injections, with slight improvement to his condition. A diagnosis of *Darier's disease* (keratosis follicularis) was made, and I verified this by biopsy reported on by Drs. Sims, Gluckman and Bloomberg. There was no familial history, and as the dermatosis might be the result of a defect in vitamin absorption or of an anomaly in carotene-vitamin conversion, liver storage, etc., I referred him to the S.A. Institute for Medical Research for liver function tests. These proved uneventful (thymol flocculation test—negative; thymol turbidity—1 unit; cephalin cholesterol flocculation test—negative).

Some time later I read that liver function was being investigated in this condition, some cases showing positive results.[1] The patient was put on to a high-calory, high-vitamin diet, ordered vitamin A and Bilein capsules together

with a protein hydrolysate by mouth; and intramuscular injections of the vitamin, 200,000 units, were given every third day. Before seeing me he had had superficial therapy at the hands of an experienced radiologist, and later during my treatment I referred him for another course, but the results were not impressive. Within two months of regular vitamin therapy definite progress was observed, and the intervals between injections were increased. Response to treatment was slow but progressive. In all, six months elapsed before his skin was relatively clear, the occasional discrete follicular papule remaining.

It must be remembered that the disease is a chronic and intractable one, and that in its full evolution the generalized dermatosis with its severe itching and discomfort, maintained over many years, may make life intolerable. Maintenance treatment, in this case one injection a month, should be given. After resolution relapse may occur, and again requires more intensive treatment over a time. This patient partially relapsed after a holiday spent at the coast, no doubt due to the greater exposure to the sun.

I have used vitamin A by the mouth in a small number of cases of *Lichen spinulosus*, a condition occurring in children, and possibly due to deficiency of the vitamin.

G. P., *aet.* 8, had a history of four years' lesions, one on the chest, one on the back, one on the vulva. These consisted of groupings of filiform spines protruding from acuminate follicular papules, and tending to clear in the centres. Her home background was of the higher economic grade; but she was subject to frequent upper respiratory infections. She was put on to vitamin A capsules, one of 50,000 units daily, and the application of a 2% ac. salicylic ointment. Two months later her doctor wrote to me that the eruption had cleared.

In 1949 I treated a child of 2½ years, suffering from a severe, generalized infantile eczema complicated by a generalized exfoliative dermatitis. The child was hospitalized, and considerable ingenuity was required over a number of months to reach a stage of quiescence. Eventually the child was sent home, the skin being in a mild, generalized ichthyotic state. The family doctor was kind enough to give him two courses of six weekly injections of vitamin A. When I saw him last his skin appeared normal in texture. In this case there appeared to be an avitaminotic factor, the family having immigrated some time previously from Holland.

I have lately instituted vitamin A therapy in two cases of seborrhoeic warts, whilst employing diathermy removal, a process which in generalized cases is tedious and requires sessions lasting over many months. Similarly, senile keratoses could be treated in this manner. The results up to date have been negative. Vitamin A has been used in the treatment of such common ailments as acne vulgaris and psoriasis: hitherto I have had no experience in such use. It might also be employed among other measures in patients having abnormally dry skins, in brittleness of nails (onychorrhexis), in individuals prone to excessive callus formation or corns, etc. In keratosis pilaris and pityriasis rubra pilaris treatment has been reported of benefit. The vitamin has been used in kraurosis vulvae (together with oestrogen therapy), in lichen chronicus simplex, in nummular eczema, in keratosis palmaris et plantaris, in alopecia areata and in familial benign chronic pemphigus. I have no experience in the exhibition of the vitamin in these conditions, with the exception of the latter, where the result was unimpressive.

I have purposely employed the term *Notes* in the heading to this article on account of its necessarily somewhat disjointed and incomprehensive nature. Where only the response to one case of a malady is quoted, it is obviously unwise to draw inferences, e.g. it is known that some instances of Darier's disease clear on vitamin A treatment, whereas others do not. The example of multiple epitheliomatosis is of interest. Squamous epithelioma is notoriously a rapidly growing condition, leading to early metastases; and at the present no treatment can supplant wide excision or adequate radiotherapy, with block dissection of glands, when necessary. Similarly basal epithelioma, although locally malignant, must be dealt with radically either by excision, surgical diathermy or radiotherapy. Nevertheless, I am of the opinion that this single case warrants investigation into various aspects of vitamin A in the body, and its place in dermatological treatment. It is possible that, as abnormally dry skins ('farmer's skin') appear to derive benefit, it may have a protective action against the irritant effect of the sun, that appears to be a factor in carcinogenesis.

Investigation of vitamin and provitamin plasma concentrations in normal individuals, in racial groups, in persons showing the recognized stigmata of vitamin A deficiency, in some of the dermatoses above mentioned, etc., might well be worth the effort in furnishing definite standards. Finally, it is to be hoped that we shall have available in the near future a simple liver function test with which to assess the minor degrees of functional derangement.

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MEDICAL PHOTOGRAPHY

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The purpose of this paper is to provide information on a subject which is rapidly gaining ground, especially in British hospitals, and to arouse interest which will help to place medical photography on a definite footing in South Africa.

Although the science of photography has been practised for just over a century, it is only really in the last 25 years that it has found important application to medicine; and since the recent war has it come to be regarded as indispensable in some of the British hospitals, although it has been employed for many years in the United States and on the Continent.

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There are over 300 photographic departments in British hospitals to-day, staffed by one or more full-time and qualified medical photographers; six medical practitioners are on full-time duty in charge of such photographic departments in Britain, and eight in the United States. These units operate quite independently of the hospital X-ray departments, for radiographers have entirely different training and equipment from that of the clinical photographer.

The most important application of medical photography is in supplementing case histories and records, apart from the research and teaching aspect. Many hospitals do routine photographs of all cases which lend themselves to photography; one copy is filed in the Photographic Department and the other is included in the patient's records. Such photographs may be full length of figures or limbs to show position or deformities; or close-ups for details of lesions, ulcers, joints, cavities, swellings, skin reactions, ear, nose and throat lesions, etc. These all provide permanent records of the patient's clinical state for subsequent assessment of progress and are also invaluable for both teaching purposes and research. They may be suitably mounted, titled enlargements can be made, or lantern slides in both monochrome and full colour, while ciné films have numerous applications.

The filing system in the Photographic Department is such that a medical lecturer or research worker can call for a batch of photographs as illustrations wherever he may require them; and the physician may request the earlier photographs of a patient to ascertain progress.

The work itself embraces a wide field: ward patients, specimens in the post-mortem room, views in an operating theatre, photographs of apparatus, surgical instruments and appliances, copies of drawings, charts, X-rays, microscopic slides, etc., may all be photographed.

Training of the Medical Photographer. The Institute of British Photographers has organized a four-year course, the first two years of which are devoted to training in general photography; when the student has passed the Intermediate Examination of the Institute he is required to spend a further two years in a recognized Medical Photography Department, where he receives instruction in anatomy and physiology besides the specialized work in photography. During this time his salary may vary from £75-£125 per annum. He then takes the final examination and is registered as a qualified medical photographer.

The running of a photographic section is entirely in the hands of the Senior Medical Photographer, but it is advisable for him to be responsible to an interested medical practitioner for guidance; projectors and epidiascopes also come under his control. The equipment of the Department with cameras, enlargers, etc., requires the expenditure of several hundreds of pounds initially, and the cost of running a small department, apart from salaries, may be anything from £50-£1,000 per annum, depending on the type and quantity of work; this covers all the photographic facilities of the hospital.

Difference between Medical and General Photography. Medical photography aims at demonstrating a lesion and must be scientifically accurate rather than beautiful. A good medical photograph should possess perfect definition, perspective, lighting and tone, must be in accurate focus, and have a scale if required. In order to achieve this, a photographer has varied technical aids at his disposal in the form of special supports and tripods, trans-illuminators, filters, polar screens, types of film base (such as infra-red to show up veins) colour, flash and so on; all of which are available to get the best views of the subject presented. It is surprising how little use is made of colour, for many authorities consider it unnecessary in the majority of clinical work, excluding skin conditions; colour films are, however, used extensively in the United States for teaching purposes.

Recent advances are the perfection of retino- and endoscopic photography. The uses to which photography is being put to-day cover most aspects of medicine, for it is the most accurate and speedy scientific recording medium in correct hands.

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EDUCATION OF THE PUBLIC CONCERNING CANCER AND EARLY DIAGNOSIS*

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Those of us who have been working at cancer problems most of our lives are optimistic that at some future date, possibly during my life time, cancer will be completely conquered. At present many patients are cured of this disease, but our goal is that every patient shall be cured. There is one fact that has been proved beyond any doubt, namely that those patients suffering from cancer who are treated in the early stage of the disease have a far better chance of a permanent cure than those in which the growth is already advanced.

It is obvious that this must be so, since once the growth has become clinically recognizable the body has no resistance against it, and the disease from then on is progressive unless it is treated.

Every statistical table concerning treatment proves the importance of early diagnosis, but I will quote only two. The first is from Christie Hospital and Holt Radium Institute where 8,538 cases of cancer were treated and analysed, between 1940 and 1944. These included those occurring at all sites, and of the early cases 62% were cured (the word 'cured' being defined as free from symptoms or signs five years after treatment), whereas of the advanced cases only 16% survived.

The other example comes from the international report on cancer of the cervix uteri which deals with 30,299 cases, treated at 24 centres in eight different countries. It shows that in stage 1 59.6% were cured, in stage 2 41.2%, in stage 3 22.9%, and in stage 4 only 6.2%. Of these patients more than

* Report of a lecture delivered in Durban on 13 March 1951.
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half had the disease in an advanced stage when first treated, i.e. were in stages 3 or 4.

In some of the centres the 5-year cure results were much better than the average quoted.

In order to obtain early diagnosis and early treatment, both medical practitioners and the public are involved. Which of these two are chiefly responsible for the late diagnosis of the disease which at present obtains?

A few consultants who remember a few blunders made by one or two general practitioners say the doctors are to blame. In my opinion this is absolutely untrue, and there are figures to prove it. I admit much can be done to help the general practitioner to be more cancer-conscious and alive to the possible diagnosis of cancer, and for this purpose the Ministry of Health in England has just completed a film. It must be remembered that each practitioner sees only a few cases of cancer each year, although the annual grand total in England and Wales is about 110,000 and of these probably 25-30,000 are cured and 75-80,000 die.

To-day, however, I am going to confine my remarks to the second set of people who are responsible for diagnosis, namely the public, because that is where the blame lies for the late diagnosis of cancer, and I have figures to prove it.

In England and Wales for several years past many of the hospitals have kept records to show the time that elapsed between the date the patient first noticed a symptom, and that on which he or she went to the doctor. This interval varies slightly between the institutions in different parts of the country but not more than by a month, and the average interval is six months, a figure which corresponds closely to that published for the state of Massachusetts 10 years ago, but which has now been reduced by cancer education to three months.

It is obvious that a neoplasm must advance a great deal in six months although the amount varies according to the rate of growth of the particular tumour.

What then is the cause of this delay in seeking advice? I have no hesitation in stating that it is fear and ignorance, although it is not easy to prove this by statistics. In America surveys have been carried out which show that cancer is the most dreaded of all diseases. Every medical practitioner has had experience of patients who have delayed in seeking advice because of fear, but I remember one particular case of a young and very intelligent woman, the wife of a surgeon, who volunteered that fear had prevented her from coming to see me; it eventually cost her her life. That experience made me vow to devote all my spare time to an endeavour to rid the country of this fear and ignorance, and save thousands of useful lives.

The mass of the people do not realize what can be done to cure certain types of cancer when treated in the early stage or to relieve suffering in those patients too far advanced to be cured.

Can Fear and Ignorance be Eliminated by Education of the Public? The successful results of education in other diseases such as venereal disease, diphtheria, etc., are well known, but if the average doctor is asked about 'cancer education' he will probably reply, 'For heavens sake don't try, you will turn the country into a mass of neurasthenicas and cancerophobes'. This reply is given because few medical men realize how much apprehension already exists.

It is not difficult to understand why there should be so much fear when it is realized that over 75,000 people each year in England and Wales go home to die of the disease, and are attended and visited by their relations and friends.

In this way over half-a-million new people come into contact with the disease each year, and these people see their relatives going downhill slowly but surely, and witness distressing complications such as haemorrhage and suppuration. All this time they are quite ignorant of the symptoms of the disease and wonder if they will be struck down by it, and are too scared to ask any questions.

They do not realize that their relatives have had the disease for many months and think that it comes like a bolt from the blue. In many cases they do not even know that it is not infectious, but continue to nurse the patient fearing all the time that they may 'catch it'. It is obvious that under these circumstances cancer cannot be kept a 'hush-hush disease' and indeed it is unlikely that there is a single person over the age of 21 who has not heard of cancer.

On many occasions I have been able to relieve the anxiety of patients who have come to see me with some trivial complaint, by examining them and saying, 'I am glad to say that there is nothing serious, no tumour or cancer', and often the reply will be 'that is really what I was worried about'. After a few minutes' talk on the symptoms of cancer the patient goes away a happier woman.

Emerson was right when he wrote: 'Knowledge is the antidote to fear.'

Can Cancer Education Help to Obtain Early Diagnosis? The results published by the Massachusetts public health authorities who are working in close co-operation with the American Cancer Society prove beyond doubt that education has produced earlier diagnosis. In 10 years the average interval between the date the patient first noticed a symptom and that of going to the doctor was reduced from six months to three months.

How do the Americans Carry out this Education? The Americans always do things on a large scale and cancer education is no exception to the rule.

The American Cancer Society collects 14,000,000 dollars per year, and most of this money is devoted to cancer education, the rest being spent on contributions to cancer hospitals, detection clinics and research.

The headquarters of the Society is in New York, but every State has its own division which is practically autonomous, and each town in that State has a cancer committee which is run by an organizer sometimes called an 'Educator'. The Educator organizes lectures and discussion groups, the lectures being given not only by consultants but also by general practitioneers who have been briefed. Incidentally this makes the general practitioner very cancer conscious and thus contributes to early diagnosis.

The committee distributes literature, much of which is bought from the headquarters in New York. The newspapers and magazines are most co-operative and helpful, as also is the radio.

I am a little critical of some of their literature, which seems to have been based originally on the idea that late diagnosis was due to carelessness and apathy on the part of the public, and in order to counteract it the literature stressed the high mortality of the disease.

In England the very opposite is true, the public being already too apprehensive to go to the doctor.

Another thing with which I disagree is the showering of leaflets on the public with only a list of 'danger signals' i.e. the seven symptoms which may occur in cancer. The danger of a short leaflet lies in the fact that the reader may get the impression that the symptoms are diagnostic of cancer. This may cause much unnecessary anxiety and deter the patient from seeking medical advice. Long pamphlets are preferable because there is space to explain that the symptoms are also common to other diseases. In spite of these criticisms I must admit that during my short visit I saw no evidence of cancerophobia, but, on the contrary, lay people were willing to discuss cancer as they would any other disease.

In some towns there are 'detection clinics' for cancer. These clinics are intended for the overhaul of people who have no symptoms, and they receive a clinical examination, in some cases an X-ray examination, and vaginal smears in the case of every woman. These clinics are very popular with the public and at many places there is a waiting list of a year, but the authorities are beginning to realize that the cost in medical manpower is not justified by the number of unsuspected cases discovered. Moreover, some of the cases detected are patients who had symptoms but denied it at first because they knew that they would get a more efficient examination than from their own doctor. In theory it is good to have an annual overhaul, but in practice it is quite impossible to screen the whole population.

What is Being Done in England? At present very little, indeed it might almost be said to be a one man campaign, but I have persuaded one borough council to take the matter up, and the Cenral Council of Health Education have agreed to try out a campaign in a limited area. There are also two or three other county councils which are thinking the matter over, and I am hopeful of persuading them as soon as I return.

The National Federation of Women's Institutes is keenly interested in this work and they have about 700 branches

distributed through the country. Between 1936 and 1940 I was able through the British Empire Cancer Campaign to organize 1,200 lectures chiefly to Women's Institutes, but this was only a drop in the ocean for such a large population, and the war brought the effort to an end.

Nevertheless, this small experience taught me much, for I received many letters of appreciation from people who had heard the lectures, and each lecturer sent me a note of the questions asked, from which I was able to compile a list of questions and correct answers, about 80 in all, for the use of other lecturers. I have given many of these lectures myself and know how interested the public are in the subject, once they have lost their initial fear.

Under the new Medical Act it is the Local Authorities who are responsible for all education of the public concerning medical matters, but I am convinced that they cannot do it without the help and enthusiasm of the lay public.

How Should a Cancer Education Campaign be Organized? In England the first step is to approach the mayor, or some other prominent member of the town or village, and ask him to call a meeting of representatives from all the local voluntary organizations, such as the Women's Institutes, Red Cross, Town Women's Guilds, Women's Voluntary Service, Rotary Clubs, etc.

At this meeting the object of the Educational campaign should be explained and volunteers called to form a committee, with a chairman, secretary, etc. The duties of such a committee would be to distribute literature, organize lectures and discussion groups, and get articles published in the local press and magazines.

A film is of great help, but is expensive to make and requires very careful planning. Money is required for printing pamphlets, etc., and the local authorities must help. The committee should also raise funds by organizing tennis tournaments, bridge competitions, etc.

These activities are very important, not only for the money raised, but also to bring the subject and indeed the word 'Cancer' before the public. It is essential to stop talking about cancer in whispers.

Can anything be done to help young people to get used to the word cancer? It would not be right to talk to them about cancer as a disease, but the subject could be taught in every biology class as an *example of abnormal growth*, and then in later life the word will create no fear.

On What Types of Cancer Should the Committee Chiefly Concentrate? In the first place, education should concern those types which are likely to give rise to symptoms whilst the disease is still in its early stage, viz. involvement of the breast, uterus, skin, tongue, larynx and rectum.

We have all had experience of lesions giving rise to symptoms for the first time when the growth is far advanced. This is due to the rapidity of the growth of the tumour, but for every one of these exceptional cases there are hundreds where the patient noticed a symptom but neglected it.

Thousands of women have lost their lives because they thought that a lump in the breast without pain could not be cancer and have neglected it. How many women have been murdered by their friends, who have said 'Don't worry, my dear, it is only the change; you must expect bleeding and floodings at your time of life'.

How many men have committed suicide by going to the chemist regularly for 'pile ointment' when the disease was not haemorrhoids?

There are of course, a few types of cancer in which the symptoms are so insidious that the patient cannot help much, e.g. lung cancer, gastric cancer, but the medical practitioner can do a great deal if he will send every patient whom he has treated during three weeks for a cough to be investigated, and if he will be suspicious of any case of indigestion starting for the first time after the age of forty. If however, it was broadcast that a cough or indigestion might be a symptom of cancer, thousands of people would be anxious after a good dinner and the G.P.'s would be crowded out.

Is there any Method or Proving the Success or Failure of the Campaign? Yes, if the hospitals will co-operate and whenever a patient is sent to them with a diagnosis of cancer, make a record of the date on which the first symptom was noticed, and the date of the first visit to the doctor. Incidently it will show if any medical practitioners are neglecting to send any suspicious cases to hospital.

If the 'symptom to doctor interval' becomes less, then the campaign is undoubtedly a success.

This does not prove that fear has been diminished, but it is very presumptive evidence.

Are there any Objections to Such an Educational Campangn? Increase in fear is the first objection raised by every person who has not thought about the matter. If this were true it might be right to leave things as they are and to sacrifice thousands of lives, for fear in my opinion is worse than death. I am convinced that a well-conducted campaign will lessen fear.

CONCLUSION

In Great Britain it has been calculated that about 25,000 patients each year are cured of cancer (using the criteria mentioned previously). It is my belief that if a proper education campaign is carried out over a number of years, another 20,000 patients in Britain could be saved each year. This figure is calculated on the probability of cure if all patients were treated in the early stage of the disease.

South Africa is a vigorous and progressive country, and there is no reason why it should not lead and show the way to the rest of the Commonwealth, and there is no reason why Durban should not be the pioneer in this great work. If Durban starts, other cities are likely to follow, and thus a national campaign will be born.

It is very easy to sit back and wait for someone else to start. This is particularly true in England where people say 'the government have taxed us until we are bled white, they should do it', but, believe me, the cold hand of Authority alone can never make a success of it.

The Government and Local Authorities should help, but to be a success such a campaign must be run 'by the people for the people'. There is no 'kudos' to be gained out of helping. The only reward, and indeed the only reward worth having, is the knowledge that you have helped your friends and others, to get rid of fear, and have thus saved thousands of lives.

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1. Bryant, J. M. and Blecha, E. (1947): Proc. Soc. Exp. Biol. Med., **65**, 227.
2. MacArthur, J. L. (1948): Canad. Med. Assoc. J., **58**, 35.
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PASSING EVENTS

We regret to record the death of Dr. J. S. Morton, a member of the East Rand Branch, on 22 July 1951.

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We regret to record the death of Dr. Joel Krige, ex Medical Officer-in-Charge, Alexandra University Clinic.

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Dr. J. J. Prag of Krugersdorp leaves for the United Kingdom on 6 September 1951. He will devote his time overseas to post-graduate studies in Forensic Medicine.

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Dr. and Mrs. A. W. S. Sichel have returned to Cape Town from England, where Dr. Sichel was recently installed as President of the British Medical Association.

Dr. and Mrs. E. N. Keen and family have recently returned to Cape Town after a two-and-a-half-year visit overseas. Dr. Keen was recently admitted as a Fellow of the Royal College of Surgeons of England and will join the staff of the Department of Anatomy of the University of Cape Town at the end of this term.

CAPE TOWN PAEDIATRIC GROUP

A meeting will be held at Groote Schuur Hospital in the Lecture Theatre, 4th Floor, on Monday, 27 August 1951, at 8.15 p.m.

Dr. W. L. Phillips will speak on *Some Radiological Appearances of Pulmonary Disease in Childhood.*

All practitioners are welcome.

REVIEWS OF BOOKS

PROGRESS IN PSYCHIATRY

The Journal of Mental Science—Recent Progress in Psychiatry: Vol. II. By authority of the Royal Medico-Psychological Association. Edited by G. W. T. H. Fleming in collaboration with Alexander Walk and P. K. McCowan. (Pp. 711. Second edition. 50s.) London: J. & A. Churchill, Limited. 1950.

Contents: 1. Introduction. 2. Psychiatric Genetics. 3. Biochemistry of the Nervous System. 4. Electro-Encephalography. 5. Cybernetics. 6. Vitamin Deficiency in Nervous and Mental Disorder. 7. Physiological Psychology. 8. Neuro-Endocrine Relationship and Endocrinology in Clinical Psychiatry. 9. Intelligence Testing. 10. Personality Tests. 11. Psychopathology. 12. Neuropathology in Relation to Mental Disease. 13. The Neuropathology of Oligophrenia. 14. Schizophrenia. 15. Problems of Old Age and the Senile and Arteriosclerotic Psychoses. 16. Neurological Psychiatry. 17. Neuro-Syphilis and its Treatment. 18. Epilepsy. 19. Mental Deficiency. 20. Delinquency and Crime. 21. Sleep and its Disturbances. 22. Psychotherapy. 23. Insulin Therapy. 24. The Neuro-Surgical Treatment of Mental Illness. 25. Suicide.

In this volume is reviewed the accumulation of noteworthy contributions to psychiatric knowledge during recent years. If the intention has been to summarize, catalogue and make isolated research available for convenient reference, it must be conceded immediately that the book is brilliantly successful. The contributors have fallen short only if they also had the more ambitious intention to assess critically the 'advances' which they describe.

Dr. Walshe (whose motives are praiseworthy, however inadequate his solutions) is not alone in his uncertainty of the scientific and philosophical basis upon which psychiatry at present rests rather uneasily, and one is disappointed that one of the distinguished contributors has not taken it upon himself to attempt a disciplined integration of the body of theory which has accumulated. However, when one remembers how many crucial problems in psychiatry wait to be solved, the impression of confusion conveyed by the jumbled information is probably inevitable. The range of the book may be bewildering, but the chaos holds every promise of being productive and will in time simmer down to a more organized body of knowledge.

It is to be hoped that in the next edition, which is promised for 1955, the problem of mind will receive more concrete consideration; if it is to be solved, a substantial contribution must be made by psychiatric research. Running like a refrain through the present book is the expectation that one day, soon perhaps, psychic phenomena will be shown to be correlated with anatomical and neural processes. Numerous scientific eyes are fixed on the imaginary gulf which some contributors appear to find dividing the body from the mind.

On both sides of the Atlantic the determined attempt continues to associate psychiatric disorders with organic brain disease. The chemical changes at the nerve end-plate are being studied energetically, mathematical formulae emerge which represent the transmission of the nerve impulse, more cats have been shocked in many laboratories, idiots are fed with amino acid, calculating machines are pondered with wild surmise, the electrical discharges of countless brains have been caught on miles of moving paper, and by now many thousands of frontal lobes must have been stirred up with blunt knives. Although much nearer the solution, psychiatric understanding does not yet include a clear concept of what mind is or why 'it' becomes diseased. Consequently much psychiatric thought and most forms of therapy still remain empirical.

In the psycho-analytical field Freud's doctrine continues to be modified from many angles, but the differences of the various workers seem to be so diverse as to be irreconcilable. A long time will pass, it appears, before even the psycho-analysts themselves will harmoniously be able to construct an adequate concept of man. Freud reproved Adler for ascribing too much to aggression; one wonders what he would have said about Dr. Perls' appallingly serious contention (p. 254) that aggression has its natural outlet in the use of the teeth, and that to promote good relations, personal and international, people should take exercises in chewing.

This volume is crowded with interesting findings, explanations and generalizations, and can be wholeheartedly recommended. The contributors to it and its indefatigable Editor deserve our appreciative congratulations.

THE EYE AND INTERNAL DISEASES

The Eye Manifestations of Internal Diseases. By I. S. Tassman, M.D. (Pp. 672 with 279 figures of which 25 are in colour. 3rd ed. 102s.) St. Louis: The C.V. Mosby Company. 1951.

Contents: 1. Normal Structure of the Eye and Orbit. 2. The General Causes of Eye Manifestations. 3. The Examination of the Patient. 4. Structural Abnormalities and Manifestations. 5. Structural Abnormalities and Manifestations (contd.). 6. Congenital and Hereditary Eye Manifestations. 7. Infections and Infectious Diseases. 8. Infections and Infectious Diseases (contd.). 9. Tuberculosis. 10. Virus and Related Infections. 11. Fungus Infections. 12. Ocular Parasites and Parasitic Infections. 13. Focal Infections. 14. Drug and Chemical Intoxications. 15. Diseases of the Cardiovascular System. 16. Diseases of the Blood. 17. Disorders of Menstruation, and Pregnancy. 18. Diseases of the Endocrine Glands and Metabolism. 19. Avitaminosis and Diseases of Nutrition. 20. Diseases of the Nervous System. 21. Intracranial Tumors. 22. Diseases of the Skin. 23. Diseases of Bones of the Skull and Orbit.

The eye is a good example, if one is needed, to demonstrate that the body does not work in separate compartments in health and disease. The eye can reveal a great deal about disease not specially referred to that organ. No clinician has made a satisfactory examination of a case if he has not carefully examined the eyes and their function. Hence the need for a book of this kind which has gone into its third edition.

The author gives 'a brief preliminary description of the primary or systemic diseases . . . for the benefit of the student and the ophthalmologist who does not have a close contact with these conditions in his regular practice'. The reviewer feels that these introductory descriptions might very well be much shorter. Neither the ophthalmologist nor the practitioner would seriously consider consulting a book of this kind on anything but the ocular manifestations of the disease he has in mind. Granted that an introduction is necessary, it only goes to swell the size and the price of a book to make these introductions too long. More ophthalmological information could then have been given, e.g. more about fields of vision in pituitary disease, or about the Argyll-Robertson pupil or of choroiditis. If it were argued that the book would then differ little from the ordinary textbook of ophthalmology, the

reviewer would still hold that a book of this kind would approach the subject from its own particular angle.

Penicillin is little more than mentioned in the treatment of syphilitic optic atrophy. In the treatment of pernicious anaemia it is misleading to say that vitamin B_{12} can be given orally even though 'larger doses are given orally' is added. Either much more should be said or, better still, the oral treatment should be strongly discouraged.

THE CAECAL APPROACH TO ILLNESS

How to Look at Illness. By Dr. Norbert Glas, M.D., L.R.C.P., M.R.C.S. (Pp. 48. 3s.) London: New Knowledge Books. 1951.

Contents: 1. The Necessity of a New Approach to Illness. 2. The Phases of Childhood. 3. The Relation of Puberty to Illness. 4. Hysteria and its Significance. 5. Simple Headaches and their Meaning. 6. Man is a Threefold Being. 7. 'Colds' and the Germ Theory. 8. We must consider Life as a Whole. 9. Accidents and Disablement do not Happen by Change. 10. The Length of Life and Euthanasia. 11. Old Age. 12. Destiny and Illness. 13. How to Look at Illness. Bibliography.

This pamphlet offers *A New Approach to Illness and Health*, based on the work of Dr. Rudolf Steiner. It is presumably intended for the lay reader. It is unlikely that the medical practitioner will be induced to recommend this tract, when the following paragraph is a typical sample of the author's alleged thoughts on the subject of 'Colds' and the Germ Theory: 'Many diseases are caused by the danger that the body may become too hardened, and some of the various "colds" belong to this type of illness.

'A cold is often nothing else but the fact that the external cold of the air, water, or wind is allowed to penetrate into the physical body. This cannot happen without damage because life means for a human being to exist as an individual and he can do so only if he is not too much affected by the external influences' (p. 30).

DISEASE IN INFANCY

Disease in Infancy and Childhood. By Richard W. B. Ellis, *O.B.E.*, M.A., M.D., F.R.C.P. (Pp. 695 with 300 illustrations. 42s.) Edinburgh: E. & S. Livingstone, Ltd. 1951.

Contents: 1. History-Taking and Examination. 2. Social and Environmental Factors in Disease. 3. Constitutional Factors in Disease. 4. The Newborn. 5. Congenital Malformations. 6. Prenatal Infection. 7. Disorders of Nutrition and Digestion. 8. Disorders of Storage. 9. Disorders of Growth and Development. 10. Neoplastic Disease. 11. Disorders of the Blood. 12. Allergic Disorders. 13. Rheumatic Disorders. 14. Diseases of the Genito-Urinary System. 15. Tuberculosis. 16. Non-Tuberculous Disease of the Respiratory Tract. 17. Communicable Diseases and other Infections. 18. Degenerative and Miscellaneous Disorders. 19. Behaviour Disorders. 20. Procedures and Therapy. Index.

The author's object is to provide an introduction to clinical paediatrics rather than an inclusive reference work on the subject. This aim is more than fulfilled and an extraordinary amount of valuable information is included within the short space of less than 900 pages. The unusual in paediatrics, although briefly discussed, is by no means excluded. The subject is well covered and the subject matter is up to date and profusely illustrated.

As far as possible, diseases are described in relation to age periods. A large part of the work deals extensively with prenatal and neo-natal disease; these chapters are relatively more detailed than many of those which follow, a virtue indeed because abnormalities peculiar to this period of life differ so materially from the later pattern of disease. The chapter on tuberculosis is particularly interesting; it is clearly and simply presented and the clinical manifestations are considered in relation to portal of entry of the pathogen and the site of infection. The statement that erythema nodosum is of tuberculous origin in from 60–80% of cases is, however, not likely to find universal acceptance to-day. Pulmonary tuberculosis is illustrated by a series of excellent X-ray plates.

This book is very readable, clearly written and so concise that it gives the impression that great care was taken by the author to delete all superfluous words. Here and there a little more detail would have improved the text. For example, the description of certain practical paediatric procedures is too concise; and in that very important chapter on nutritional and digestive disorders in infancy, infant feeding is too briefly surveyed and the treatment of severe infantile diarrhoea is so condensed that its application may be difficult to follow where the reader is not conversant with modern ideas on this subject. Also, vitamins should be given earlier than 'after the first two or three months of life'. These few criticisms by no means detract from the excellence of the volume which is highly recommended as a textbook for students and interns and a handy work for the medical practitioner who wishes to 'brush up' on modern paediatrics.

PHARMACOLOGY

The Pharmacology and Therapeutics of the Materia Medica. By Walter J. Dilling. (Pp. 598 + xxxii. 19th ed. 21s.) London: Cassell & Company Limited. 1951.

Contents: Introduction. Part I: The Inorganic Materia Medica. Part II: The Vegetable and Animal Materia Medica and Synthetic Preparations. Part III: Pharmacology and General Therapeutics. Appendix. Index.

This well-known textbook first published in 1884, has been thoroughly revised, re-set and re-designed in this latest edition. It incorporates preparations of the *British Pharmacopoeia 1948* and in addition deals with many other new and valuable drugs used in the treatment of infections, anaemias, neoplastic disorders and allergic conditions. Amongst others, muscle relaxants, local anaesthetics, ACTH, blood products, vaccines and sera are also described.

In addition to the description of the pharmacological actions, uses and official preparations of various drugs, there are in Part III most useful chapters dealing with applied pharmacology. The art of therapeutics being essentially the application of pharmacology, the therapeutist must be conversant not only with the main actions and uses of drugs, but also with their side-effects and possible toxic reactions.

This book provides in very readable form a modern account of the individual drugs and, from the practical point of view, a valuable description of the use of particular groups of agents in therapeutics. To all those interested in drugs this volume will provide much of the information ordinarily required. The price of the book has remained extraordinarily modest.

STEROIDS AND NEOPLASMS

Steroid Hormones and Tumors. By A. Lipschutz, M.D. (Pp. 310 + xiv with 111 figures. 46s. 6d.) Baltimore: The Williams & Wilkins Company. British Agents: Baillière, Tindall & Cox, London.

Contents: *Part I. The Tumorigenic Action of Steroids and Its Implication for the Problem of Cancer.* 1. Fundamental Problems of Tumorigenesis and Carcinogenesis. 2. Estrogen-induced Experimental Fibroids. 3. Fibromatogenic Versus Physiological Action of Estrogens. 4. The Problem of Localization of Fibromatogenic Action. 5. Sex Specificity of the Abdominal Fibrous Reaction. 6. Species Differences of the Tumoral Response to Estrogens. 7. Neoplastic Growth, and the Concept of the Mosaic of Territories. 8. Irreversible Atypical Proliferation and Neoplastic Growth Induced by Estrogens. 9. Estrogens, Neoplasm and Cancer.

Part II. The Antitumorigenic Action of Steroids. 10. Antagonistic Actions of Sex Hormones. 11. Comparative Antifibromatogenic Action of Different Steroids. 12. Structural Particularities of Antifibromatogenic Steroids. 13. The Question of Concomitancy of Antifibromatogenic and Physiological Actions of Steroid Compounds. 14. The Mode of Action of Antifibromatogenic Steroids. 15. Hormonal Treatment of Estrogen-Induced Tumoral Growth in Experimental Animals. 16. Antitumorigenic Actions of Steroids, and the Concept of the Mosaic of Territories.

Part III. The Steroid Balance, or Steroid Homeostasis, and the Antitumoral Autodefense. 17. Hypophysial-ovarian Factors of the Steroid Balance. 18. Experimental Overthrow of the Ovarian-Hypophysial Relationship. 19. Suprarenal Factors of the Steroid Balance. 20. Hepatic Factors of the Steroid Balance. 21. Neoplastic Growth of Testicle, Ovary and Adrenals Induced by Overthrow of the Gonadal-Hypophysial Relationship. 22. Tabulated Summaries of Part III. 23. Conclusion: Some Practical Aspects.

This is an important survey, but the valuable amount of factual material is unfortunately presented in a manner which will irritate the most accommodating reader.

The difficulty may, in part, arise as a result of the author's and the translator's lack of an intimate acquaintance with the riddles of the English language. This little problem, however, should have been remedied with competent assistance. On page 1, e.g., occurs the sentence: 'at the actual moment one may tentatively resume the riddle of cancer in five partial

problems'; Numerous experiments are never made with an 'experimental devise' (p. 196).

Although the prose style will distinctly inhibit the reader who has any respect for the correct use of the English language and although it will make him wince repeatedly, it must be admitted that the book contains a valuable amount of factual data. It is deeply to be regretted that these data should have seen the light of day in so unattractive a guise.

The publishers have put this book out as one written allegedly in English; they would be well advised to consider seriously its translation into that language.

Jan Christiaan Smuts

Jan Christiaan Smuts—His Character and Life. By Arnold Rieck. (Pp. 44. With 45 illustrations.) Cape Town: Peninsula Press, Limited. 1951.

Contents: 1. His Character. 2. His Life.

Dr. Arnold Rieck is the author of an interesting publication in verse entitled *Jan Christiaan Smuts—His Character and Life.*

This slender volume is most elegantly produced (having been printed and bound in Cape Town). Half of it consists of excellent illustrations very well prepared and selected, depicting the late General Smuts in a great variety of moods and situations.

Dr. Rieck's verses capture a noble subject in edifying and fluent fashion. His contribution will be of a great interest, both here and overseas, as an enduring tribute to a great South African.

Infant Feeding and Feeding Difficulties

Infant Feeding and Feeding Difficulties. By Philip Rainsford Evans, M.D., M.Sc., F.R.C.P., and Ronald MacKeith, M.A., D.M., M.R.C.P., D.C.H. (Pp. 255 + viii with 64 illustrations. 12s. 6d.) London: J. & A. Churchill Limited. 1951.

Contents: 1. Aims. 2. Standards of Normal Growth. 3. The Infant's Digestive System. 4. The Nutritive Needs of Infants. 5. The Nutrition of the Mother. 6. The Anatomy and Physiology of Lactation. 7. Milk. 8. Breast Feeding: General Considerations. 9. Ante-Natal Preparation for Breast Feeding. 10. The First Two Weeks of Breast Feeding. 11. Breast Feeding from the End of the Second Week to the End of the Second Month. 12. Breast Feeding, Continuation, and Weaning. 13. The Breast Milk Bank. 14. Artificial Feeding. 15. Prematurity. 16. Anomalies and Diseases of the Mouth, Nose, and Oesophagus. 17. Anomalies of the Stomach and Intestines. 18. Underfeeding and Overfeeding. 19. Intolerance of Protein, Fat or Carbohydrate and of Milk. 20. Gastroenteritis. 21. Deficiency Diseases. 22. Feeding in Illness. Marasmus. 23. Weaning Difficulties. 24. Feeding Problems. 25. Practical Manoeuvres.

Of the large number of books published on infant feeding none has, as yet, approached in interest and commonsense this, the most recent publication on the subject. It has been a pleasure to read a book that condemns rigid feeding schedules, no night feeds and mechanical handling of babies.

The book abounds with words of wisdom. 'Regular weighing during the first year is customary, and is a wise safeguard, but scales (like clocks) are better servants than masters in infant feeding.' 'The figure of 2½ oz. per lb. body weight per day is widely accepted as the necessary intake of an infant. A more physiological way of putting it is that an infant needs enough to keep him happy and growing and the amount required for this varies between 1½ to 3½ oz., being usually about 2½ oz.' It is excellent to propagate the idea that infant's requirements are not fixed by Budin values.

The works of Bakwin, Spitz and Spence are used to stress the importance of not separating infants from their mothers—an idea certainly strange to doctors, nurses and hospital administrators, who look upon those parents who wish to accompany their children to hospital as natural enemies.

The nutritive needs of infants are well summarized. 'The new-born can digest protein and sugar. All that is necessary to ensure that a milk diet is suitable is:—

'1. A low fat diet for the first three months, or longer in hot climates.

'2. A low starch intake for the first 4 to 6 months.

'3. Prevention of the occurrence of large tough casein curds.'

The above precautions do not necessarily apply to all infants. It is our experience in South Africa that most infants can tolerate the ordinary milk dilutions and that starches added in small quantities at about the age of three months can be well digested. Fats and starches do the greatest harm if introduced in excessive amounts.

Some of the most interesting chapters in the book are on lactation and on breast feeding. Waller's technique in expressing the breasts before term and the use of the 'Waller shield' for retracted nipples are well described and well worth adopting. Galactagogues are justifiably condemned. The use of Lugol's iodine is relegated to where it belongs—not proven!

It would be interesting to do a survey in South Africa of the number of successful breast-fed babies among the Africans. In England 50% of infants are still breast-fed at three months whilst only 40% at six months. What factors are there that make for failure in breast feeding?

The authors consider that ante-natal care is the most important. They point to the large variation in breast feeding at the age of eight weeks under various local authorities—85% in Lewisham and 33% in Glasgow. Does that mean that civilized women have to be weaned back to the natural method of infant feeding? Those who agree with the 'formulas' of the Americans will be interested in Grulee's (Chicago) figures. Of 26,000 healthy well-covered babies he found that the incidence of infection was 37% amongst the breast-fed, 54% amongst the partly breast-fed, and 64% amongst the bottle-fed.

The one striking factor of the book is the sensible and human approach to the subject. A criticism offered is the advocated use of even mild purgatives. They are entirely unnecessary and should not be used.

This is an excellent book. It should be read by everyone connected with child health. Medical students should have it prescribed as a standard textbook. It could well replace all that has hitherto been written on the subject.

Personality and Psychosis

Personality and Psychosis. By O. W. S. Fitzgerald, M.A., M.D. (Pp. 134 + viii. 12s. 6d.) London: Baillière, Tindall & Cox. 1951.

Contents: 1. The Object of Personality Typing. 2. The Introvert Personality. 3. The Extravert Personality. 4. Acquired Personality Traits. 5. The Obsessional Trait. 6. The Hysterical Trait. 7. The Paranoid Trait. 8. Impetuous Extravert Case Examples. 9. Deliberate Extravert Case Examples. 10. Introvert Case Examples. 11. Practical Applications. Index.

The author's preface intimates that he has 'singled out only those personality traits which seem to affect the choice of treatment for psychotic patients'. But on the last page (132) we find the recognition that 'quite a number of psychiatrists . . . maintain that one should study the total personality if one is to study personality at all,' and one reason for the present typological oversimplification of the dynamic relationship between man and his environment, both internal and external, is that 'a study of the total personality necessitates the use of a . . . battery of psychological tests, or a psychoanalytic approach . . .'. But it seems that problems of 'time and case load' make 'such approaches . . . diagnostic luxuries'.

And yet some such indulgence must ultimately ease the doctor's 'case load' and incidentally the patient's 'trait' load. A trained psychologist could solve the doctor's time problem.

Page 3 declares, 'we need not give consideration to . . . intelligence because a man may develop a particular psychosis be he a genius or an imbecile'. Nevertheless, the last page but two reveals that 'an intelligent patient can very often be relieved of obsessional symptoms'. And the technique? That of 'bluntly exposing the patient's unconscious self-deception'.

One would have thought the patient's *Conscious* cares sufficient without the imposition of *Unconscious* terrors, more especially since we find on page 1 'that Freud had little to do with the psychotic . . .'.

This synthesis of the Kretschmer-Jung typologies is modest of achievement. It is unlikely to make converts among the initiated.

The Medical Association of South Africa
Die Mediese Vereniging van Suid-Afrika

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ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS/LOCUMS REQUIRED

(L/V119) S.W.A. immediately for six weeks. £3 3s. p.d. plus all found. 10s. p.d. car depreciation allowance plus free petrol and oil.

(L/V112) Johannesburg from 18 December 1951 to 18 January 1952. £2 12s. 6d. p.d. plus all found and petrol and oil paid.

MEDICAL EQUIPMENT

(I/017) Leitz microscope £45.

(I/018) What offers? Complete set 'British Encyclopaedia of Medical Practice' plus all editions of 'Medical Progress' to 1950. Condition as new.

* * * *

CAPE TOWN : KAAPSTAD

Medical House, P.O. Box 643, Cape Town. Telephone 2-6177
Mediese Huis, Posbus 643, Kaapstad. Telefoon 2-6177

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(746) Large dispensing practice, mainly non-European. Average annual cash receipts approx. £5,200. £5,500 required for premium, drugs and surgery furniture. Details on application.

(350) Eastern Cape Hospital town. Total gross receipts for preceding 13 months £3,700. One appointment. Premium of £2,000 includes drugs, surgery furniture, fittings, etc. House for sale at £3,000. Large bond available. £700 rebate if appointment not transferred. Practice offers great scope for practitioner with surgical ability.

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS/LOCUMS REQUIRED

(778) Noord-Kaapland. Hospitaaldorp. So spoedig moontlik vir een maand. £2 2s. p.d. plus inwoning en reiskoste. Kar word voorsien. Moontlikheid om aan te bly as assistent.

(779) Noord-Kaapland. Vir maand September. £2 12s. 6d. plus inwoning. 9d. per myl kar toelae.

MEDICAL EQUIPMENT FOR SALE

(758) Electrocardiograph. Sanborne Cardiette. Weight 24 lb. Perfect working condition. Used by Cape Town specialist physician. £160 or nearest offer.

(674) Complete up-to-date set of the British Encyclopaedia of Medical Practice. Any reasonable offer.

(772) (261) Surgery furniture comprising teak desk, revolving chair couch, instrument and dressing tables, cupboards and waiting room furniture. Price £125. Instruments at £100. Microscope at £25.

Wanted

Male assistant with view to future partnership required for select busy European practice in Salisbury, Southern Rhodesia. Experience of general practice and thorough knowledge of current medicine essential. Must have own car. Write to 'A. H. V.', P.O. Box 643, Cape Town.

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

Applications are invited from registered medical practitioners for the following posts:—

Honorary Anaesthetist at the Cape Town Free Dispensary.

The appointment will be for five years, but may be terminable before the end of that period if and when the medical staffing of the Hospitals is reorganized.

Applications containing particulars of age, qualifications, experience, etc., with copies of recent testimonials should be forwarded to the undersigned by noon on Saturday, 1 September 1951.

L. Welham
Branch Representative
(4741)

Hospitals Department
Industry Building
58 Loop Street
Cape Town

Municipality of White River

VACANCY: PART-TIME MEDICAL OFFICER OF HEALTH

Applications are hereby invited for the position of part-time Medical Officer of Health at a remuneration of £60 per annum.

Applicants must be bilingual and must furnish full particulars of their qualifications and experience.

The successful candidate will be required to enter into an agreement with the Council, detailing the duties and terms of appointment, particulars of which may be obtained from this office.

Applications endorsed 'Part-time Medical Officer of Health' must reach the undersigned not later than noon on Thursday, 13 September 1951.

J. B. H. Rabie
Town Clerk
(224)

Municipal Offices
White River
30 July 1951

For Sale

Microscope by W. Watson and Sons, 313 High Holborn, London. No. 4093. Tripod with brass feet. Single barrel. Tilting movement. Coarse and fine adjustment. Rack and pinion adjustment for eye-pieces. Fitting for three objectives. Mechanical stage which rotates two clips. Venier scale in front. Condenser. Diaphragm. Mirror, concave and plain. Fine adjustment for raising barrel is marked 'Up and Down'. One revolution = 1/13 mm. Circumference of wheel graduated 0 to 9. 1 × eye-pieces. Push fitting B.6. 1 × eye-pieces. Push fitting C.8 Objectives. I.C. Zeiss, Jena. D. D.O. 17. 13,244 on terminal lense holder. 2.C. Zeiss a.a. 1,260 on lense holder. 3 × 5 40 mm. apochromatic. N.A. 0.16. No. 470. T.L. 220 mm. Fitted wood case. Price: £55 or nearest offer. Write to 'A. H. Y.', P.O. Box 643, Cape Town.

Practice for Sale

Large, progressive North-Eastern Cape Town. Modern, large hospital and nursing-home facilities. Net receipts exceeding £7,000 per annum. Excellent facilities, major surgery. Fully-equipped surgery on long lease. No appointments. Write to 'A. H. T.', P.O. Box 643, Cape Town.

Medical Practitioner Required

Jaff and Company Limited, manufacturers, of 9 Crossman Road, Kimberley, require a medical practitioner to attend the employees of their factory at Benefit Society rates.

This appointment has been approved by the Griqualand West Branch of the Medical Association of South Africa.

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

HOSPITAL BOARD SERVICE: VACANCIES

1. Applications are invited for the following vacant medical posts in the Hospital Board Service:—

Institution	*Post*	*Salary Scale*	*Closing Date*	*Applications must be addressed to:—*
Victoria Hospital, Aliwal North	Junior Resident Medical Officer (2 posts)	£240 p.a. plus board and quarters (£72) and laundering (£6 p.a.)	20.8.51.	The Medical Superintendent, Victoria Hospital, Aliwal North.
Kuruman Hospital, Kuruman	Medical Superintendent (part-time)	£180 p.a. (fixed)	20.8.51.	The Director of Hospital Services, P.O. Box 2060, Cape Town.
Victoria West Hospital, Victoria West	Medical Superintendent (part-time)	£360 p.a. (fixed)	20.8.51.	The Director of Hospital Services, P.O. Box 2060, Cape Town.
Kimberley Hospital, Kimberley	Medical Practitioner Grade E. (Pathologist)	£1,600 p.a. (fixed)	20.8.51.	The Director of Hospital Services, P.O. Box 2060, Cape Town.

2. The conditions of service are prescribed in terms of the Hospital Board Service Ordinance No. 19 of 1941 and the regulations framed thereunder.

3. In addition to the scale of pay indicated a cost-of-living allowance at rates prescribed from time to time by the Administrator is payable to whole-time officials and employees.

4. Any further particulars required in connection with the two vacant posts of Junior Resident Medical Officer at the Victoria Hospital, Aliwal North, are obtainable from the Medical Superintendent of that institution.

5. The successful candidate for the post of Medical Practitioner Grade E. will be required to submit satisfactory birth and health certificates.

6. Application must be made on the prescribed form (Staff 23) which is obtainable from the Director of Hospital Services, P.O. Box 2060, Provincial Building, Wale Street, Cape Town, or from the Branch Representatives of the Hospitals Department at Cape Town (P.O. Box 1487), Port Elizabeth (P.O. Box 80), East London (P.O. Box 13), Kimberley (P.O. Box 618) and Umtata (P.O. Box 202), or from the Medical Superintendent of any Provincial Hospital or Secretary of any School Board in the Cape Province.

7. Candidates must state the earliest date on which they can assume duty. (Y249289)

NOTICE

Department of Health

VACANCY FOR A PART-TIME DENTIST AT THE HEALTH CENTRE AT STELLENBOSCH

Attention is invited to an advertisement appearing in the *Government Gazette* of 3 August 1951, in which applications are invited for appointments to a vacant post of part-time dentist at the health centre at Stellenbosch.

The successful candidate will be required to attend for one three-hour session per week and will be remunerated at the all inclusive rate of £75 per annum.

Application must be made on the prescribed forms Z. 83 and P.S.C. 8, which are obtainable from the Secretary for Health, P.O. Box 386, Pretoria. (30235)

Siekefonds van die Suid-Afrikaanse Spoorweë en Hawens

AANSTELLING VAN SPOORWEGDOKTER: GROENPUNT

Applikasies word van geregistreerde mediese praktisyns ingewag vir die betrekking van Spoorwegdokter, Groenpunt, teen 'n salaris van £562 per jaar, plus £18 per jaar besoekerstoelae, plus die gelde en toelaes wat in die regulasies van die Siekefonds voorgeskryf word, en met die reg om privaat te praktiseer.

Die salaris is onderhewig aan wysiging in ooreenstemming met die sensus van lede wat op 1 April van elke jaar afgeneem moet word.

Die aanstelling geskied kragtens die regulasies van die Siekefonds en opsegging van dienste is onderworpe aan vier mande kennisgewing deur een van beide partye.

Die suksesvolle applikant moet op Groenpunt woon, op 'n datum wat gereël sal word diens aanvaar, en sy pligte ooreenkomstig die regulasies van die Siekefonds uitvoer.

Aansoeke moet die Distriksekretaris, Distriksiekefondsraad, Security-gebou, Kaapstad, nie later nie as 31 Augustus 1951 bereik, en applikante moet die volgende vermeld:—

1. Volle naam.
2. Kwalifikasies (waar en wanneer verkry en opgedoen).
3. Ondervinding (waar en wanneer verkry en opgedoen).
4. Datum van geboorte.
5. Land van geboorte.
6. Getroud of ongetroud.
7. Of ten volle tweetalig.
8. Of Suid-Afrikaanse burger.
9. Watter staatsbetrekking, indien enige, beklee word.

Werwing deur of ten behoewe van enige applikant stel so 'n applikant bloot aan diskwalifikasie.

Enige verder besonderhede wat verlang word kan op aanvraag van die Distriksekretaris by bovermelde adres verkry word.

P. J. Klem
Hoofsekretaris

Johannesburg
18 Augustus 1951 (2)

The South African Institute for Medical Research, Johannesburg

The Board of Management of the above Institute has approved of the establishment of Fellowships for a period of three years at a salary of £500, £600, £700 respectively, plus a variable cost-of-living allowance which is at present approximately £192 per annum, during which period the appointees would be trained in all Departments and permitted to take the D.C.P. course subject to a contract that the officer concerned would be prepared to return to the Institute for at least one year after obtaining his degree on the Senior Professional Scale of £1,000 × 100—£1,400. While attending the full-time D.C.P. course at the University the officer would continue to receive full pay from the Institute. The numbers of appointees is limited to four in any one year.

All appointments will, in the first instance, be for a period of twelve months and reviewed annually, subject to satisfactory progress.

Applications should be addressed to the Director, South African Institute for Medical Research, P.O. Box 1038, Johannesburg.

Public Service Commission

VACANCIES IN THE PUBLIC SERVICE

1. The attention of medical practitioners, registered with the South African Medical and Dental Council, is drawn to an advertisement appearing the *Government* and *Provincial Gazettes* of this week, inviting applications for the undermentioned posts:

Post	*Department/ Administration*	*Salary Scale*
Medical Inspector of Schools	Transvaal Provincial Administration	£900 x 40—1,100 x 50—1,200
Medical Officer ..	Health	£960 x 40—1,120
Medical Officer ..	South West Africa Administration	£900 x 40—1,020
Medical Officer ..	Health	£600 x 30—840 plus privileges of quarters, rations, fuel, light and laundry

2. In addition to salary a cost-of-living allowance at the rate of £256 per annum (married) and £80 per annum (single) is payable at present.

3. It is emphasized that full and detailed particulars of qualifications and previous experience (including military service) must be furnished but original certificates and testimonials should not be submitted.

Application forms (Z.83 and P.S.C. 8(a)) are obtainable from the Secretary, Public Service Commission, Pretoria, to whom filled-in forms must be addressed.

4. The closing date for the receipt of applications is 8 September 1951.

(30335)

The Alexandra Health Centre and University Clinic

Applications, from suitably qualified medical practitioners, are invited for the post of Medical Superintendent in the above-mentioned Institution.

The salary scale is £1,000 - £50 plus cost-of-living allowance up to a total of £1,500 including cost-of-living allowance. (The cost-of-living allowance at present is £109 4s. per annum.)

The initial salary will be fixed in accordance with experience and qualifications. The successful applicant must assume duty on or about 1 December 1951.

The closing date for the receipt of applications is 24 September 1951. Full particulars of the appointment may be had from the Assistant Registrar, Medical School, Hospital Hill, Johannesburg, to whom applications should be addressed.

(F. 6760)

Natal Provincial Administration

ORTHOPAEDIC SURGEON (PART-TIME): GREY'S HOSPITAL

Applications are invited from suitably qualified registered medical practitioners for appointment to a post of Part-time Orthopaedic Surgeon at Grey's Hospital, Pietermaritzburg.

Salary will be at the rate of £840 per annum.

Further particulars may be obtained from the Director of Provincial Medical and Health Services, P.O. Box 20, Pietermaritzburg, to whom applications should be addressed to reach him before 31 August 1951. (AD 6416)

Required

Panel of medical practitioners required, part-time, by South African Forge (Pty.) Ltd., Medical Benefit Society, to cover the following area: Germiston, Elsburg, Alberton, Malvern and Boksburg. Apply to Secretary, South African Forge (Pty.) Ltd., Medical Benefit Society, P.O. Box 321, Germiston.

National Hospital, Bloemfontein

VACANCY

Applications are hereby invited from candidates with suitable qualifications for the following post at the National Hospital and Tempe Provincial Hospital, Bloemfontein.

Applications must be posted to reach the Medical Superintendent as soon as possible, and must contain full particulars concerning age, professional qualifications, experience and marital status of the applicant who must indicate the earliest date on which duty can be assumed if appointed.

Registrar—Orthopaedic Department at a salary of £400 to £600 per annum according to previous experience, plus free quarters. If accommodation is not available then £100 per annum will be added to the salary. Applicants for this post must be qualified for at least two years.

The successful applicant will be expected to produce satisfactory certificates concerning qualifications.

In addition to annual salaries employees at present receive a cost-of-living allowance.

The appointment is subject to the Hospital Regulations as amended.

J. W. Wessels
Medical Superintendent

3 August 1951 (Z 203498)

Nasionale Hospitaal, Bloemfontein

VAKATURE

Aansoeke word hiermee ingewag van kandidate met geskikte kwalifikasies vir die volgende pos by die Nasionale Hospitaal en Tempe Provinsiale Hospitaal, Bloemfontein.

Aansoeke moet gerig word om die Geneesheer-Direkteur so spoedig moontlik te bereik en moet volle besonderhede bevat aangaande die ouderdom, professionele kwalifikasies, ondervinding en huwelikstaat van die applikant en moet voorts 'n aanduiding bevat van die vroegste datum waarop diens aanvaar kan word indien aangestel.

Registrateur in Ortopedie met salaris van £400 na £600 per jaar na gelang van vorige ondervindings, plus vry inwoning op hospitaal-terrein. In geval inwoning op hospitaal-terrein nie beskikbaar is nie word £100 per jaar by salaris gevoeg. Applikante vir hierdie pos moet minstens twee jaar gekwalifiseerd wees.

Van die persoon wat aangestel word, sal verwag word om bevredigende sertifikate in te dien aangaande kwalifikasies.

Benewens jaarlikse salarisse ontvang werknemers op die oomblik lewenskostetoelae.

Die aanstelling geskied in terme van die Hospitaal Regulasies soos gewysig.

J. Wessels
Geneesheer-Direkteur

3 Augustus 1951 (Z 203498)

Southern Rhodesia Government

VACANCY: PATHOLOGIST: DEPARTMENT OF HEALTH

Applications from male medical practitioners who have had experience in pathology (morbid anatomy and histology) are invited for the above post.

The successful applicant will be required to take charge of the pathological work of the Salisbury Hospital and, in the Public Health Laboratory, Salisbury, to undertake medico-legal duties and the training of medical laboratory technicians and to assist in the administration of the Laboratory.

Salary Scale: £1,604 x 66—£1,736 per annum, plus cost-of-living allowance of £273 per annum.

No housing accommodation is provided.

The appointment will be subject to the rules and regulations of the Southern Rhodesia Civil Service.

The successful applicant will be required to obtain a satisfactory certificate at a medical examination by a Southern Rhodesia Government Medical Officer.

Applications, stating age, nationality, marital state, qualifications and previous experience, together with copies of testimonials, should be forwarded to reach the Secretary for Health, P.O. Box 93, Causeway, Southern Rhodesia, not later than 29 September 1951.

Canvassing will disqualify applicants. (4282)

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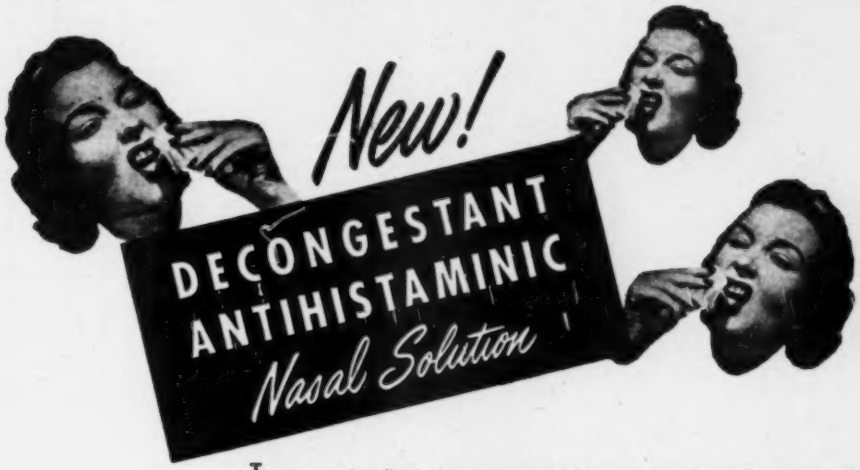

The concept that allergic tissue responses are important contributory factors in upper respiratory infections has been widely accepted. To combat these allergic manifestations more effectively, the time-tested, dependable decongestant—Neo-Synephrine hydrochloride—has been combined with a new, highly active antihistaminic—Thenfadil hydrochloride.

Neo-Synephrine® Thenfadil

HIGHLY EFFECTIVE DECONGESTANT ANTIHISTAMINIC

For symptomatic control of the common cold, allergic rhinitis including hay fever, vasomotor rhinitis and sinusitis.

Well Tolerated—No Drowsiness—Neo-Synephrine Thenfadil nasal solution in clinical tests was well tolerated except for a transitory stinging in a few cases. There was essential freedom from central nervous system stimulation: trepidation, restlessness, insomnia; neither was there drowsiness.

Effective—In common colds, allergic rhinitis including hay fever, vasomotor rhinitis, and sinusitis, excellent results were reported in nearly all cases. There was prompt, prolonged decongestion without compensatory vasodilatation. Repeated doses did not reduce the consistent effectiveness.

Dose: 2 or 3 drops up to ½ dropperful three or our times daily. Neo-Synephrine Thenfadil solution contains 0.25 per cent. Neo-Synephrine hydrochloride and 0.1 per cent. Thenfadil hydrochloride (N, N-dimethyl-N'-(3-thenyl)-N'-(2-pyridyl) ethylenediamine hydrochloride) in an isotonic buffered aqueous vehicle. Supplied in ¼% and 1% solutions in bottles of 30 c.c. (1 fl. oz.) with dropper.

Winthrop Products (Pty.) Ltd.

P.O. Box 2461 DURBAN | P.O. Box 9536 JOHANNESBURG | P.O. Box 4186 CAPE TOWN

Neo-Synephrine, trademark registered brand of phenylephrine
Thenfadil, trademark.

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